Claims

1. A method of controlling an RF power amplifier comprising:

providing a bias signal to the RF power amplifier for normal operation;

detecting the magnitude of an input signal to be amplified by the RF power amplifier; and

changing the bias signal as a function of the input signal to reduce power consumption of the RF power amplifier.

2. The method of claim 1 wherein the bias signal is removed when the magnitude of the input signal reaches a predetermine threshold.

3. The method of claim 2 wherein the input signal is an RF signal.

4. The method of claim 2 wherein the threshold is a voltage threshold.

5. The method of claim 1 wherein the input signal is a digital baseband data.

6. The method of claim 5 and further including buffering the input signal.

7. The method of claim 6 wherein the bias signal is changed prior to the corresponding input signal being provided to the RF power amplifier.

8. The method of claim 1 and further comprising low pass filtering the bias signal prior to providing it to the RF power amplifier.

9. A RF power amplifier comprising:

a bias voltage circuit that supplies a bias voltage;

a comparator circuit that compares an RF input signal to a threshold;

a power transistor that receives the bias voltage and amplifies the RF input signal; and

a switch coupled to the comparator circuit for modifying the bias voltage to switch the power transistor on and off responsive to the threshold.

10. The RF power amplifier of claim 9 and further comprising a low pass filter coupled to the power transistor that filters the switched bias signal.

11. The RF power amplifier of claim 9 wherein the switch comprises a transistor.

12. The RF power amplifier of claim 11 wherein the transistor comprises a source, drain and gate, and wherein the gate of the transistor is coupled to the comparator.

13. The RF power amplifier of claim 9 and further comprising:

a diode detector circuit coupled to the comparator circuit; and

a RF coupler that receives the input signal and provides it to the power transistor and to the diode detector circuit.

14. A RF power amplifier comprising:

a bias voltage circuit that supplies a bias voltage;

a comparator circuit that compares an RF input signal to a threshold;

a diode detector circuit coupled to the comparator circuit;

a power transistor that receives the bias voltage and amplifies the RF input signal;

a switch coupled to the comparator circuit for modifying the bias voltage to switch the power transistor on and off responsive to the threshold;

a low pass filter coupled to the power transistor that filters the switched bias signal; and

a RF coupler that receives the input signal and provides it to the power transistor and to the diode detector circuit.

15. A RF power amplifier system comprising:

a buffer for buffering baseband digital data;

a buffer for buffering a digital representation of the power of the baseband digital data;

a comparator for providing a bias signal to an RF power amplifier as a function of the digital representation of the power of the baseband digital data; and

a converter for converting the baseband digital data to RF, and providing it to the RF power amplifier.

16. The RF power amplifier system of claim 15 wherein the buffers are FIFO buffers of equal size.

17. The RF power amplifier system of claim 15 wherein the digital representation of the power is compared to a threshold power.

18. The RF power amplifier system of claim 17 wherein the bias signal turns the RF power amplifier on when the digital represent of the power is greater than the threshold.

19. The RF power amplifier system of claim 17 wherein the bias signal turns the RF power amplifier off when M consecutive power samples are all less than a threshold power.

20. A method of controlling a RF power amplifier system, the method comprising:

buffering baseband digital data;

buffering a digital representation of the power of the baseband digital data;

providing a bias signal to an RF power amplifier as a function of the digital representation of the power of the baseband digital data; and

converting the baseband digital data to RF, and providing it to the RF power amplifier.